

U.S. Patent Application No. 10/791,140  
Ballard Spahr Ref. 21087.0026U2  
For General Discussion Purposes Only

Telephonic Interview with Patent Examiner Luong  
May 6, 2009 at 2:00 PM EST

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**EXAMINER INTERVIEW AGENDA**

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**I. Introduction**

The discussion is directed to the 103 rejection over Warren in view of Tomography definition from dictionary.com of claims 1 and 16.

**II. Applicant's Disclosure**

The Office Action on page 6, states that the "applicant's disclosure indicates bioluminescence and fluorescence are interchangeable." Page 6, line 18 – page 7, line 2 of Applicant's disclosure reads:

Some further embodiments may detect and record bioluminescent emissions and/or fluorescent emissions. This image data, along with associated x-ray CT images of the same object, can be used to reconstruct a three-dimensional emission image volume and register the bioluminescent CT image to a corresponding x-ray CT or micro-CT image volume of anatomical and pathological structures. In some such embodiments, the bioluminescent (or fluorescent) reconstruction process can be enhanced through the use of knowledge gained from x-ray CT or other anatomic information gathered by use of other imaging devices including, but not limited to, MRI or ultrasound. As a non-limiting example, emitted photons can be collected from multiple directions in three dimensions with respect to a living animal or any other light emitting structure of interest marked by bioluminescent reporter luciferases or fluorescent sources. In some embodiments, a lung and/or various tumors may be imaged.

(Emphasis added). This paragraph merely states that light received from either a fluorescent or a bioluminescent light source can benefit from information obtained through other imaging means. This does not mean that fluorescence and bioluminescence are interchangeable systems. The independent claims are directed to bioluminescent systems.

**III. Proposed Amendment**

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Applicants present a proposed amendment below for claim 1 (Applicants would make similar amendments to claim 16). The Applicants have specifically amended to exclude external light sources, which are required for fluorescent systems. Thus, the Applicants claims are squarely directed at bioluminescent systems, and not fluorescent systems. Accordingly, Warren in view of Tomography definition does not render obvious the amended claims.

1. **(Currently Amended)** A method for reconstructing a bioluminescent source distribution within an object, comprising:

imaging the object using a tomographic imaging modality to produce a first reconstructed image;

mapping optical absorption and scattering properties of the object to the first reconstructed image; and

detecting optical signals emitted from the object using an optical imaging modality and producing a bioluminescent source distribution in the object based on the mapped optical properties, wherein the optical imaging modality is not reliant on external excitation, and wherein the bioluminescent source distribution is produced based on a single- or a multi-spectral radiative transport equation or an approximation to the single- or multi-spectral radiative transport equation.